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# United States Patent [19]

**Bernard et al.**

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## [54] LOCAL AREA NETWORK WITH OPTICAL TRANSMISSION

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[58] Field of Search ..... **359/118, 119,**  
**359/120, 121, 125, 173; 370/85.5**

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## [57] ABSTRACT

Each node (N1) of the network is connected to each of the subscriber sets (P1-1) that are associated with the node via a single optical fiber (FP1-1) on two different wavelengths. The node is connected to each of certain other nodes via a single fiber (FN1-2) on a single wavelength. In the node, the electrical signals are supplied by two optical receivers (2, 6) and are transmitted via amplifiers (8, 10) to a single transmitter (4). A passive directional coupler (22) and a wavelength separator (20) provide the necessary optical connections. Passive optical dividers (24, 26) form two interfaces with the sets and with the other nodes. The invention is applicable in particular to industrial transmission networks.

**9 Claims, 2 Drawing Sheets**

